

# NMCP COVID-19 Literature Report #47: Friday, 06 November 2020

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**Purpose:** These weekly reports, published on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers and leadership. All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

**Disclaimer:** I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily. Please feel free to reach out with questions, suggestions for future topics, or any other feedback.

## Statistics

*Global today:* 48,850,917 confirmed cases and 1,235,985 deaths in 190 countries/regions

*1 week ago:* 45,170,690 confirmed cases and 1,183,116 deaths in 190 countries/regions

*2 weeks ago:* 41,820,333 confirmed cases and 1,138,802 deaths in 189 countries/regions

## United States\*

top 5 states by cases (Virginia is ranked 18th)

	TOTAL US	TX	CA	FL	NY	IL
Confirmed Cases	9,619,421	969,490	958,223	827,380	518,812	453,738
Tests	152,507,113	8,483,728	19,266,363	10,328,997	15,195,176	8,122,987
Deaths	235,030	18,907	17,872	16,403	33,657	10,085

\*see [census.gov](https://census.gov) for current US Population data; NA: not all data available

[JHU CSSE](https://jhu.csse.psu.edu) as of 1000 EDT 06 November 2020

Virginia	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	188,770	5,168	2,233	3,357	5,649	2,902	2,395	8,540
Hospitalized	12,936	491	99	121	416	325	140	463
Deaths	3,682	80	33	51	85	69	78	110

[VA DOH](https://doe.virginia.gov) as of 1000 EDT 06 November 2020

## Updates From the CDC

### Common Investigation Protocol for Investigating Suspected SARS-CoV-2 Reinfection

"This protocol is designed to support a common public health investigation into suspected SARS-CoV-2 reinfection cases across jurisdictions. Confirming SARS-CoV-2 reinfection requires advanced laboratory diagnostic support built upon advanced planning to implement this protocol, or a locally adapted version, with referral of specimens to supporting laboratory networks. Data collected with this protocol will identify potential cases of reinfection, advance understanding of SARS-CoV-2 epidemiology, and inform public health response."

### Strategies for Optimizing the Supply of Disposable Medical Gloves

"These considerations are intended for use by federal, state, and local public health officials; leaders in occupational health services and infection prevention and control programs; and other leaders in healthcare settings who are responsible for developing and implementing policies and procedures for preventing pathogen transmission in healthcare settings.

This document offers a series of strategies or options to optimize supplies of disposable medical gloves in healthcare settings when there is limited supply. It does not address other aspects of pandemic planning; for those, healthcare facilities can refer to COVID-19 preparedness plans."

### What Maritime Pilots Need to Know about COVID-19

### CDC's role in helping cruise ship travelers during the COVID-19 pandemic

## Special Reports

AAP: [Interim Guidance on Supporting the Emotional and Behavioral Health Needs of Children, Adolescents, and Families During the COVID-19 Pandemic](#) (updated 23 October 2020)

AAP: [Guidance Related to Childcare During COVID-19](#) (updated 23 October 2020)

IHI: ["Psychological PPE": Promote Health Care Workforce Mental Health and Well-Being](#)

"The COVID-19 pandemic is exacerbating existing issues with health care professional burnout and joy in work that will persist once the more immediate crisis has abated.

There is significant interest in health care in the concept of "psychological PPE" (personal protective equipment) — individual and system-level actions owned by unit and team leaders that provide protection and support for staff's mental health that can be deployed both before providing care and after a shift has ended.

IHI reviewed available evidence for interventions that can help protect staff mental health in the face of extreme working conditions such as natural disasters, terrorist attacks, and previous pandemics. We synthesized this research into evidence-based “psychological PPE” recommendations for use by staff providing care during the COVID-19 pandemic.

The accompanying visual graphic is designed to be posted for staff to see and use daily, and for team leaders to reference and use to create the enabling conditions for key recommendations to be successful. "



NCDP: [130,000 – 210,000 Avoidable COVID-19 Deaths – and Counting – in the U.S \[pdf\]](#) (21 October 2020)

"This 13-page report looks at the staggering and disproportionate nature of COVID-19 fatalities in the United States, which now ranks first in the world in the total number of fatalities, to estimate how many deaths were “avoidable.” It estimates that at least 130,000 deaths and perhaps as many as 210,000 could have been avoided with earlier policy interventions and more robust federal coordination and leadership." [[annotation per Disaster Lit](#)]

WHO: [Infection prevention and control health-care facility response for COVID-19: Interim Guidance](#) (20 October 2020)

"This self-assessment tool is designed for acute health-care facilities (i.e. tertiary and secondary) but can be modified for the use in long-term care facilities, to help identify, prioritize and address the gaps in infection prevention and control (IPC) capacity in

managing their response to COVID-19. The tool should be used by IPC professionals and/or those responsible for disaster planning or outbreak management in the facility (such as the response to the COVID-19 outbreak) at the start of the improvement process. A sample workplan template is provided to address gaps identified and record required actions. Repeat assessments are recommended (i.e. once a month), in order to correct actions and maintain an adequate response to the COVID-19 outbreak."

### **Selected Literature: Peer-Reviewed Journals**

*Date given is the date published or posted online; often these papers are ahead of print.*

*06 November 2020*

MMWR: [Birth and Infant Outcomes Following Laboratory-Confirmed SARS-CoV-2 Infection in Pregnancy — SET-NET, 16 Jurisdictions, March 29–October 14, 2020](#)

"Pregnant women with SARS-CoV-2 infection are at increased risk for severe illness compared with nonpregnant women. Adverse pregnancy outcomes such as preterm birth and pregnancy loss have been reported.

Among 3,912 infants with known gestational age born to women with SARS-CoV-2 infection, 12.9% were preterm (<37 weeks), higher than a national estimate of 10.2%. Among 610 (21.3%) infants with testing results, 2.6% had positive SARS-CoV-2 results, primarily those born to women with infection at delivery.

These findings can inform clinical practice, public health practice, and policy. It is important that providers counsel pregnant women on measures to prevent SARS-CoV-2 infection."

MMWR: [Update: Characteristics of Symptomatic Women of Reproductive Age with Laboratory-Confirmed SARS-CoV-2 Infection by Pregnancy Status — United States, January 22–October 3, 2020](#)

"Limited information suggests that pregnant women with COVID-19 might be at increased risk for severe illness compared with nonpregnant women.

In an analysis of approximately 400,000 women aged 15–44 years with symptomatic COVID-19, intensive care unit admission, invasive ventilation, extracorporeal membrane oxygenation, and death were more likely in pregnant women than in nonpregnant women.

Pregnant women should be counseled about the risk for severe COVID-19-associated illness including death; measures to prevent infection with SARS-CoV-2 should be emphasized for pregnant women and their families. These findings can inform clinical practice, risk communication, and medical countermeasure allocation."

MMWR: [Telework Before Illness Onset Among Symptomatic Adults Aged ≥18 Years With and Without COVID-19 in 11 Outpatient Health Care Facilities — United States, July 2020](#)

"Since March 2020, large scale measures to reduce workplace transmission of SARS-CoV-2, including workplace closures and providing telework options, have been implemented.

Adults who received positive test results for SARS-CoV-2 infection were more likely to report exclusively going to an office or school setting in the 2 weeks before illness onset, compared with those who tested negative, even among those working in a profession outside of the critical infrastructure.

Businesses and employers should promote alternative work site options, such as teleworking, where possible, to reduce exposures to SARS-CoV-2. Where telework options are not feasible, worker safety measures should continue to be scaled up to reduce possible worksite exposures."

**Employers, promote teleworking when possible to reduce workplace exposures to COVID-19**

Employed adults who tested positive for COVID-19 were almost **twice as likely** to report regularly going to a workplace\* than those who tested negative

**When telework isn't possible, implementing worker safety measures can help protect employees and the community**

\*Employed adults reported going into an office/school regularly or working from home or teleworking  
Case-control investigation of symptomatic people with positive SARS-CoV-2 test results (n=120) and negative tests (n=128)

CDC.GOV      [bit.ly/MMWR11520](https://bit.ly/MMWR11520)      MMWR

MMWR: [Transmission of SARS-CoV-2 Infections in Households — Tennessee and Wisconsin, April–September 2020](#)

"Transmission of SARS-CoV-2 occurs within households; however, transmission estimates vary widely and the data on transmission from children are limited.

Findings from a prospective household study with intensive daily observation for  $\geq 7$  consecutive days indicate that transmission of SARS-CoV-2 among household members was frequent from either children or adults.

Household transmission of SARS-CoV-2 is common and occurs early after illness onset. Persons should self-isolate immediately at the onset of COVID-like symptoms, at the time of testing as a result of a high risk exposure, or at time of a positive test result, whichever comes first. All household members, including the index case, should wear masks within shared spaces in the household."

04 November 2020

Cell: [Case Study: Prolonged infectious SARS-CoV-2 shedding from an asymptomatic immunocompromised cancer patient](#)

"Long-term SARS-CoV-2 shedding was observed from the upper respiratory tract of a female immunocompromised patient with chronic lymphocytic leukemia and acquired hypogammaglobulinemia. Shedding of infectious SARS-CoV-2 was observed up to 70 days, and genomic and subgenomic RNA up to 105 days past initial diagnosis. The infection was not cleared after a first treatment with convalescent plasma, suggesting limited impact on SARS-CoV-2 in the upper respiratory tract within this patient. Several weeks after a second convalescent plasma transfusion, SARS-CoV-2 RNA was no longer detected. We observed marked within-host genomic evolution of SARS-CoV-2, with continuous turnover of dominant viral variants. However, replication kinetics in Vero E6 cells and primary human alveolar epithelial tissues were not affected. Our data indicate that certain immunocompromised patients may shed infectious virus for longer durations than previously recognized. Detection of subgenomic RNA is recommended in persistently SARS-CoV-2 positive individuals as a proxy for shedding of infectious virus."

Clin Infect Dis: [Lack of antibodies to SARS-CoV-2 in a large cohort of previously infected persons](#)

"We analyzed serologic data collected from health care workers and first responders in New York City and the Detroit metropolitan area with history of a positive SARS-CoV-2 reverse transcriptase polymerase chain reaction (RT-PCR) test result and who were tested for IgG antibodies to SARS-CoV-2 spike protein at least 2 weeks after symptom onset.

Of 2,547 persons with previous confirmed SARS-CoV-2 infection, 160 (6.3%) were seronegative. Of 2,112 previously symptomatic persons, the proportion seronegative slightly increased from 14 to 90 days post symptom onset ( $p=0.06$ ). The proportion seronegative ranged from 0% among 79 persons previously hospitalized to 11.0% among 308 persons with asymptomatic infections. In a multivariable model, persons taking immunosuppressive medications were more likely to be seronegative (31.9%, 95% confidence interval [CI] 10.7%-64.7%), while participants of non-Hispanic Black race/ethnicity (versus non-Hispanic White) (2.7%, 95% CI 1.5%-4.8%), with severe obesity

(versus under/normal weight) (3.9%, 95% CI 1.7%-8.6%), or with more symptoms were less likely to be seronegative.

In our population with previous RT-PCR confirmed infection, approximately one in 16 persons lacked IgG antibodies. Absence of antibodies varied independently by illness severity, race/ethnicity, obesity, and immunosuppressive drug therapy. The proportion seronegative remained relatively stable among persons tested up to 90 days post symptom onset."

*03 November 2020*

Arthritis Rheumatol: [Race/ethnicity association with COVID-19 outcomes in rheumatic disease: Data from the COVID-19 Global Rheumatology Alliance Physician Registry](#)

"Racial/ethnic minorities experience more severe outcomes of COVID-19 in the general United States (US) population. The aim of this study was to examine the association between race/ethnicity and COVID-19 hospitalization, ventilation status, and mortality in people with rheumatic disease.

US patients with rheumatic disease and COVID-19 entered into the COVID-19 Global Rheumatology Alliance physician registry March 24 – August 26, 2020 were included. Race/ethnicity was defined as white, Black, Latinx, Asian and other/mixed race. Outcomes included hospitalization, requirement for ventilatory support, and death. Multivariable regression models were used to estimate odds ratios (OR) and 95% confidence intervals controlling for age, sex, smoking, rheumatic disease diagnosis, comorbidities, medications taken prior to infection, and rheumatic disease activity.

A total of 1,324 patients were included, of whom 36% were hospitalized and 6% died; 26% of hospitalized patients required mechanical ventilation. In multivariable models, Black (OR=2.74, 95% CI 1.90, 3.95), Latinx (OR=1.71, 95% CI 1.18, 2.49), and Asian (OR=2.69, 95% CI 1.16, 6.24) patients had higher odds of being hospitalized compared to white patients. Latinx patients also had three-fold increased odds of requiring ventilatory support (OR=3.25, 95% CI 1.75, 6.05). No differences in mortality based on race/ethnicity were found, though power may have been limited to detect associations.

Similar to findings in the general US population, racial/ethnic minorities with rheumatic disease and COVID-19 had increased odds of hospitalization and ventilatory support. These results illustrate significant health disparities related to COVID-19 in people with rheumatic diseases. The rheumatology community should proactively address the needs of patients currently experiencing inequitable health outcomes during the pandemic."

Cell: [Quick COVID-19 Healers Sustain Anti-SARS-CoV-2 Antibody Production](#)

"Antibodies are key immune effectors that confer protection against pathogenic threats. The nature and longevity of the antibody response to SARS-CoV-2 infection is not well defined. We charted longitudinal antibody responses to SARS-CoV-2 in 92 subjects after symptomatic COVID-19. Antibody responses to SARS-CoV-2 are unimodally distributed over a broad range, with symptom severity correlating directly with virus-specific antibody magnitude. Seventy-six subjects followed longitudinally to ~100 days demonstrated marked heterogeneity in antibody duration dynamics. Virus-specific IgG decayed substantially in most individuals, whereas a distinct subset had stable or increasing antibody levels in the same timeframe despite similar initial antibody magnitudes. These individuals with increasing responses recovered rapidly from symptomatic COVID-19 disease, harbored increased somatic mutations in virus-specific memory B cell antibody genes, and had persistent higher frequencies of previously activated CD4+ T cells. These findings illuminate an efficient immune phenotype that connects rapid symptom clearance to differential antibody durability dynamics."

Clin Infect Dis: [SARS-CoV-2 Infections Among Children in the Biospecimens from Respiratory Virus-Exposed Kids \(BRAVE Kids\) Study](#)

"We conducted a prospective cohort study of children and adolescents (<21 years of age) with a SARS-CoV-2-infected close contact. We collected nasopharyngeal or nasal swabs at enrollment and tested for SARS-CoV-2 using a real-time PCR assay.

Of 382 children, 293 (77%) were SARS-CoV-2-infected. SARS-CoV-2-infected children were more likely to be Hispanic ( $p<0.0001$ ), less likely to have asthma ( $p=0.005$ ), and more likely to have an infected sibling contact ( $p=0.001$ ) than uninfected children. Children ages 6-13 years were frequently asymptomatic (39%) and had respiratory symptoms less often than younger children (29% vs. 48%;  $p=0.01$ ) or adolescents (29% vs. 60%;  $p<0.0001$ ). Compared to children ages 6-13 years, adolescents more frequently reported influenza-like (61% vs. 39%;  $p<0.0001$ ), gastrointestinal (27% vs. 9%;  $p=0.002$ ), and sensory symptoms (42% vs. 9%;  $p<0.0001$ ), and had more prolonged illnesses [median (IQR) duration: 7 (4, 12) vs. 4 (3, 8) days;  $p=0.01$ ]. Despite the age-related variability in symptoms, we found no differences in nasopharyngeal viral load by age or between symptomatic and asymptomatic children.

Hispanic ethnicity and an infected sibling close contact are associated with increased SARS-CoV-2 infection risk among children, while asthma is associated with decreased risk. Age-related differences in the clinical manifestations of SARS-CoV-2 infection must be considered when evaluating children for COVID-19 and in developing screening strategies for schools and childcare settings."

EBioMedicine: [Persistence of viral RNA, pneumocyte syncytia and thrombosis are hallmarks of advanced COVID-19 pathology](#)

"Here we report the systematic analysis of 41 consecutive post-mortem samples from individuals who died of COVID-19. Histological analysis is complemented by immunohistochemistry for cellular and viral antigens and the detection of viral genomes by *in situ* RNA hybridization.

COVID-19 is characterized by extensive alveolar damage (41/41 of patients) and thrombosis of the lung micro- and macro-vasculature (29/41, 71%). Thrombi were in different stages of organization, consistent with their local origin. Pneumocytes and endothelial cells contained viral RNA even at the later stages of the disease. An additional feature was the common presence of a large number of dysmorphic pneumocytes, often forming syncytial elements (36/41, 87%). Despite occasional detection of virus-positive cells, no overt signs of viral infection were detected in other organs, which showed non-specific alterations.

COVID-19 is a unique disease characterized by extensive lung thrombosis, long-term persistence of viral RNA in pneumocytes and endothelial cells, along with the presence of infected cell syncytia. Several of COVID-19 features might be consequent to the persistence of virus-infected cells for the duration of the disease."

Nature: [Repeated cross-sectional sero-monitoring of SARS-CoV-2 in New York City](#)

"In late 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in China and has since caused a pandemic of Coronavirus Disease 2019 (COVID-19). The first COVID-19 case in New York City (NYC) was officially confirmed on March 1st 2020 followed by a severe local epidemic.<sup>1</sup> To understand seroprevalence dynamics, we conducted a retrospective, repeated cross-sectional analysis of anti-SARS-CoV-2 spike antibodies in weekly intervals from the beginning of February to July 2020 using more than 10,000 plasma samples from patients at Mount Sinai Hospital in NYC. Here we show the dynamics of seroprevalence in an 'urgent care' (UC) group, enriched for COVID-19 cases during the epidemic, and a 'routine care' group (RC), which more closely represents the general population. Seroprevalence increased at different rates in both groups, with seropositive samples as early as mid-February, and levelled out at slightly above 20% in both groups after the epidemic wave subsided by the end of May. From May to July seroprevalence stayed stable, suggesting lasting antibody levels in the population. Our data suggest an earlier than previously documented introduction of SARS-CoV-2 into NYC and describe the dynamics of seroconversion over the full course of the first pandemic wave in a major metropolitan area."

02 November 2020

Infect Control Hosp Epidemiol: [Timing and Route of Contamination of Patient Rooms With Healthcare-Associated Pathogens](#)

"We conducted an observational cohort study in an acute-care hospital to identify the timing and route of transfer of pathogens to rooms of newly admitted patients with negative MRSA nares results and no known carriage of other healthcare-associated pathogens. Rooms were thoroughly cleaned and disinfected prior to patient admission. Interactions of patients with personnel and portable equipment were observed, and serial cultures for pathogens were collected from the skin of patients and from surfaces, including those observed to come in contact with personnel and equipment. For MRSA, spa typing was used to determine relatedness of patient and environmental isolates.

For the 17 patients enrolled, 1 or more environmental cultures became positive for MRSA in rooms of 10 patients (59%), for C. difficile in rooms of 2 patients (12%) and for vancomycin-resistant enterococci (VRE) in rooms of 2 patients (12%). The patients interacted with an average of 2.4 personnel and 0.6 portable devices per hour of observation. As shown in Figure 1, MRSA contamination of the floor occurred rapidly as personnel entered the room. In a subset of patients, MRSA was subsequently recovered from patients' socks and bedding and ultimately from the high-touch surfaces in the room (tray table, call button, bedrail). For several patients, MRSA isolates recovered from the floor had the same spa type as isolates subsequently recovered from other sites (eg, socks, bedding, and/or high touch surfaces). The direct transfer of healthcare-associated pathogens from personnel or equipment to high-touch surfaces was not detected.

Healthcare-associated pathogens rapidly accumulate on the floor of patient rooms and can be transferred to the socks and bedding of patients and to high-touch surfaces. Healthcare facility floors may be an underappreciated source of pathogen dissemination not addressed by current infection control measures."

JAMA Netw Open: [Development and Performance of a Clinical Decision Support Tool to Inform Resource Utilization for Elective Operations](#)

"Question: How can clinical departments implement a clinical decision support tool to predict expected resource use to prioritize elective inpatient surgical procedures?

Findings: In this prognostic study, predictive models for length of stay, intensive care unit length of stay, mechanical ventilator requirement, and discharge disposition to a skilled nursing facility were developed using historical case data abstracted from the electronic health records of 42 199 patients. These models were integrated into an interactive online dashboard with end-user input and iteratively tested.

Meaning: Predictive modeling, in conjunction with other contextualizing factors, can be used to inform how to recommence elective inpatient procedures after the coronavirus disease 2019 (COVID-19) pandemic."

Lancet Infect Dis: [SARS-CoV-2 seroprevalence and transmission risk factors among high-risk close contacts: a retrospective cohort study](#)

"This retrospective cohort study involved all close contacts of confirmed COVID-19 cases in Singapore, identified between Jan 23 and April 3, 2020. Household contacts were defined as individuals who shared a residence with the index COVID-19 case. Non-household close contacts were defined as those who had contact for at least 30 min within 2 m of the index case. All patients with COVID-19 in Singapore received inpatient treatment, with access restricted to health-care staff. All close contacts were quarantined for 14 days with thrice-daily symptom monitoring via telephone. Symptomatic contacts underwent PCR testing for SARS-CoV-2. Secondary clinical attack rates were derived from the prevalence of PCR-confirmed SARS-CoV-2 among close contacts. Consenting contacts underwent serology testing and detailed exposure risk assessment. Bayesian modelling was used to estimate the prevalence of missed diagnoses and asymptomatic SARS-CoV-2-positive cases. Univariable and multivariable logistic regression models were used to determine SARS-CoV-2 transmission risk factors.

Between Jan 23 and April 3, 2020, 7770 close contacts (1863 household contacts, 2319 work contacts, and 3588 social contacts) linked to 1114 PCR-confirmed index cases were identified. Symptom-based PCR testing detected 188 COVID-19 cases, and 7582 close contacts completed quarantine without a positive SARS-CoV-2 PCR test. Among 7518 (96·8%) of the 7770 close contacts with complete data, the secondary clinical attack rate was 5·9% (95% CI 4·9–7·1) for 1779 household contacts, 1·3% (0·9–1·9) for 2231 work contacts, and 1·3% (1·0–1·7) for 3508 social contacts. Bayesian analysis of serology and symptom data obtained from 1150 close contacts (524 household contacts, 207 work contacts, and 419 social contacts) estimated that a symptom-based PCR-testing strategy missed 62% (95% credible interval 55–69) of COVID-19 diagnoses, and 36% (27–45) of individuals with SARS-CoV-2 infection were asymptomatic. Sharing a bedroom (multivariable odds ratio [OR] 5·38 [95% CI 1·82–15·84]; p=0·0023) and being spoken to by an index case for 30 min or longer (7·86 [3·86–16·02]; p<0·0001) were associated with SARS-CoV-2 transmission among household contacts. Among non-household contacts, exposure to more than one case (multivariable OR 3·92 [95% CI 2·07–7·40], p<0·0001), being spoken to by an index case for 30 min or longer (2·67 [1·21–5·88]; p=0·015), and sharing a vehicle with an index case (3·07 [1·55–6·08]; p=0·0013) were associated with SARS-CoV-2 transmission. Among both household and non-household contacts, indirect contact, meal sharing, and lavatory co-usage were not independently associated with SARS-CoV-2 transmission.

Targeted community measures should include physical distancing and minimising verbal interactions. Testing of all household contacts, including asymptomatic individuals, is warranted."

Nature: [Age-specific mortality and immunity patterns of SARS-CoV-2](#)

"Estimating the size and infection severity of the SARS-CoV-2 epidemic is made challenging by inconsistencies in available data. The number of COVID-19 deaths is often used as a key indicator for the epidemic size, but observed deaths represent only a minority of all infections<sup>1,2</sup>. Additionally, the heterogeneous burden in nursing homes and variable reporting of deaths in elderly individuals can hamper direct comparisons across countries of the underlying level of transmission and mortality rates<sup>3</sup>. Here we use age-specific COVID-19 death data from 45 countries and the results of 22 seroprevalence studies to investigate the consistency of infection and fatality patterns across multiple countries. We find that the age distribution of deaths in younger age groups (<65 years) is very consistent across different settings and demonstrate how this data can provide robust estimates of the share of the population that has been infected. We estimate that the infection-to-fatality ratio (IFR) is lowest among 5-9 years old, with a log-linear increase by age among individuals older than 30 years. Population age-structures and heterogeneous burdens in nursing homes explain some but not all of the heterogeneity between countries in infection-fatality ratios. Among the 45 countries included in our analysis, we estimate approximately 5% of these populations had been infected by the 1st of September 2020, with much higher transmission likely to have occurred in a number of Latin American countries. This simple modelling framework can help countries assess the progression of the pandemic and can be applied wherever reliable age-specific death data exists."

*30 October 2020*

J Thorac Cardiovasc Surg: [Triage and management of aortic emergencies during the coronavirus disease 2019 \(COVID-19\) pandemic: A consensus document supported by the American Association for Thoracic Surgery \(AATS\) and Asian Society for Cardiovascular and Thoracic Surgery \(ASCVTS\)](#)

"An algorithmic approach to acute aortic emergencies during the COVID-19 pandemic can reduce the risk of exposure for patients and health care providers."

JACC Cardiovasc Imaging: [Screening of Potential Cardiac Involvement in Competitive Athletes Recovering from COVID-19: An Expert Consensus Statement](#)

"As our understanding of the complications of coronavirus disease–2019 (COVID-19) evolve, sub-clinical cardiac pathology such as myocarditis, pericarditis and right ventricular dysfunction in the absence of significant clinical symptoms represents a concern. The

potential implications of these findings in athletes are significant given the concern that exercise, during the acute phase of viral myocarditis, may exacerbate myocardial injury and precipitate malignant ventricular arrhythmias. Such concerns have led to the development and publication of expert consensus documents aimed at providing guidance for the evaluation of athletes after contracting COVID-19 in order to permit safe return-to-play. Cardiac imaging is at the center of these evaluations. This review seeks to evaluate the current evidence regarding COVID-19 associated cardiovascular disease and how multi-modality imaging may be useful in the screening and clinical evaluation of athletes with suspected cardiovascular complications of infection. Guidance is provided with diagnostic "red flags" that raise the suspicion of pathology. Specific emphasis is placed on the unique challenges posed in distinguishing athletic cardiac remodeling from sub-clinical cardiac disease. The strengths and limitations of different imaging modalities are discussed and an approach to return-to-play decision making for athletes' post COVID-19, as informed by multi-modality imaging, is provided.

#### Highlights:

- COVID-19 may cause potential long-term cardiopulmonary complications in athletes, raising concern regarding return to play (RTP).
- Exercise induced cardiac remodeling may be misinterpreted as COVID-19 related cardiac injury.
- We discuss the strengths and limitations of relevant imaging modalities and an approach to RTP decision making.
- Registry data of cardiac testing and outcomes in athletes after COVID-19 is needed to guide future screening strategies."

JAMA: [Peripheral Oxygen Saturation in Older Persons Wearing Nonmedical Face Masks in Community Settings](#)

"In this small crossover study, wearing a 3-layer nonmedical face mask was not associated with a decline in oxygen saturation in older participants. Limitations included the exclusion of patients who were unable to wear a mask for medical reasons, investigation of 1 type of mask only, Spo2 measurements during minimal physical activity, and a small sample size. These results do not support claims that wearing nonmedical face masks in community settings is unsafe."

JAMA Netw Open: [Laboratory Findings Associated With Severe Illness and Mortality Among Hospitalized Individuals With Coronavirus Disease 2019 in Eastern Massachusetts](#)

"Question: How well can sociodemographic features, laboratory values, and comorbidities of individuals hospitalized with coronavirus disease 2019 (COVID-19) in Eastern Massachusetts through June 5, 2020, predict a severe illness course?

**Findings:** In this cohort study of 2511 hospitalized individuals positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by polymerase chain reaction who were admitted to 1 of 6 hospitals, 215 (8.6%) were admitted to the intensive care unit, 164 (6.5%) required mechanical ventilation, and 292 (11.6%) died. In a risk prediction model, 212 deaths (78%) occurred in the top mortality-risk quintile.

**Meaning:** Simple prediction models may assist in risk stratification among hospitalized patients with COVID-19."

Occup Environ Med: [Association between SARS-CoV-2 infection, exposure risk and mental health among a cohort of essential retail workers in the USA](#)

"To investigate SARS-CoV-2 (the virus causing COVID-19) infection and exposure risks among grocery retail workers, and to investigate their mental health state during the pandemic.

This cross-sectional study was conducted in May 2020 in a single grocery retail store in Massachusetts, USA. We assessed workers' personal/occupational history and perception of COVID-19 by questionnaire. The health outcomes were measured by nasopharyngeal SARS-CoV-2 reverse transcriptase PCR (RT-PCR) results, General Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9).

Among 104 workers tested, 21 (20%) had positive viral assays. Seventy-six per cent positive cases were asymptomatic. Employees with direct customer exposure had an odds of 5.1 (95% CI 1.1 to 24.8) being tested positive for SARS-CoV-2 after adjustments. As to mental health, the prevalence of anxiety and depression (ie, GAD-7 score >4 or PHQ-9 score >4) was 24% and 8%, respectively. After adjusting for potential confounders, those able to practice social distancing consistently at work had odds of 0.3 (95% CI 0.1 to 0.9) and 0.2 (95% CI 0.03 to 0.99) screening positive for anxiety and depression, respectively. Workers commuting by foot, bike or private cars were less likely to screen positive for depression (OR 0.1, 95% CI 0.02 to 0.7).

In this single store sample, we found a considerable asymptomatic SARS-CoV-2 infection rate among grocery workers. Employees with direct customer exposure were five times more likely to test positive for SARS-CoV-2. Those able to practice social distancing consistently at work had significantly lower risk of anxiety or depression."

PLoS Med: [Acute kidney injury associated with COVID-19: A retrospective cohort study](#)

"Why was this study done?

- Recent reports have suggested that some patients with Coronavirus Disease 2019 (COVID-19) develop acute kidney injury (AKI).
- There is a need to better understand risk factors for AKI in patients with COVID-19.

- It is also unclear if AKI in patients with COVID-19 differs from AKI due to other causes.

What did the researchers do and find?

- In this study, we examined risk factors for AKI in patients with COVID-19 and also compared AKI in COVID-19 with AKI due to other causes.
- We found that males and patients of nonwhite ethnicity as well as those with comorbidities were at increased risk of developing AKI in COVID-19.
- AKI was associated with a 3-fold increase in mortality in COVID-19 patients.
- Patients with COVID-19 and AKI had higher mortality (60.5% versus 27.6%) than patients with AKI due to other causes, and COVID-19 was an independent predictor of mortality associated with an almost 4-fold odds of death.

What do these findings mean?

- COVID-19 frequently causes AKI, and when it does, it is associated with a higher mortality than COVID-19 without AKI or AKI due to other causes.
- Patients with COVID-19 should be monitored for early evidence of AKI so that preventive measures can be taken to avoid AKI."

*29 October 2020*

Clin Infect Dis: [Dose-response Relation Deduced for Coronaviruses from COVID-19, SARS and MERS Meta-analysis Results and its Application for Infection Risk Assessment of Aerosol Transmission](#)

"We developed a simple framework to integrate the a priori dose-response relation for SARS-CoV based on mice experiments, the recent data on infection risk from a meta-analysis and the respiratory virus shedding in exhaled breath, to shed light on the dose-response relation for human. The aerosol transmission infection risk was evaluated based on the dose-response model for typical indoor environment.

The developed dose-response relation is an exponential function with a constant k in the range of about  $6.4 \times 10^{-4}$  to  $9.8 \times 10^{-5}$  virus copies, which means that the infection risk caused by one virus copy in viral shedding is on the order of  $10^{-6}$  to  $10^{-5}$ . The median infection risk via aerosol transmission with one-hour exposure ( $10^{-6}$  to  $10^{-4}$ ) was significantly lower than the risk caused by close contact ( $10^{-1}$ ) in a room of the area from 10 to 400 m<sup>2</sup> with one infected individual in it and with typical ventilation rate 1 ACH (Air Changes per Hour).

The infection risk caused by aerosol transmission was significantly lower than the risk caused by close contact. It is still necessary to be cautious for the potential aerosol transmission risk in small rooms with prolonged exposure duration."

JAMA Netw Open: [Estimated Association of Construction Work With Risks of COVID-19 Infection and Hospitalization in Texas](#)

"Question: Is construction work associated with increased community transmission of coronavirus disease 2019 (COVID-19) and disproportionate morbidity among construction workers in US cities?

Findings: This decision analytical model of COVID-19 found that resuming construction work during shelter-in-place orders was associated with increased hospitalization risks in the construction workforce and increase transmission in the surrounding community. Based on COVID-19 hospitalization data through August 20, 2020, construction workers had a nearly 5-fold increased risk of hospitalization in central Texas compared with other occupational categories.

Meaning: The findings of this study suggest that enacting workplace safety policies and providing paid sick leave could protect essential workers in high-contact industries and prevent further widening of disparities in COVID-19 morbidity and mortality."

*28 October 2020*

Immunol Cell Biol: [COVID-19, varying genetic resistance to viral disease, and immune tolerance checkpoints](#)

"COVID-19 is a zoonosis like most of the great plagues sculpting human history, from smallpox to pandemic influenza and human immunodeficiency virus. When viruses jump into a new species the outcome of infection ranges from asymptomatic to lethal, historically ascribed to "genetic resistance to viral disease". People have exploited these differences for good and bad, for developing vaccines from cowpox and horsepox virus, controlling rabbit plagues with myxoma virus, and introducing smallpox during colonisation of America and Australia. Differences in resistance to viral disease are at the core of the SARS-CoV-2 crisis, yet our understanding of the mechanisms in any interspecies leap falls short of the mark. Here I review how the two key parameters of viral disease are countered by fundamentally different genetic mechanisms for resistance: 1. virus transmission, countered primarily by activation of innate and adaptive immune responses; and 2. pathology, countered primarily by tolerance checkpoints to limit innate and adaptive immune responses. I discuss tolerance thresholds and the role of CD8 T cells to limit pathological immune responses, the problems posed by tolerant superspreaders, and the signature coronavirus evasion strategy of eliciting only short-lived neutralising antibody responses. Pinpointing and targeting the

mechanisms responsible for varying pathology and short-lived antibody was beyond reach in previous zoonoses, but this time we are armed with genomic technologies and more knowledge of immune checkpoint genes. These known unknowns must now be tackled to solve the current COVID-19 crisis and the inevitable zoonoses to follow."

NEJM: [SARS-CoV-2 Neutralizing Antibody LY-CoV555 in Outpatients with Covid-19](#)

"In this ongoing phase 2 trial involving outpatients with recently diagnosed mild or moderate Covid-19, we randomly assigned 452 patients to receive a single intravenous infusion of neutralizing antibody LY-CoV555 in one of three doses (700 mg, 2800 mg, or 7000 mg) or placebo and evaluated the quantitative virologic end points and clinical outcomes. The primary outcome was the change from baseline in the viral load at day 11. The results of a preplanned interim analysis as of September 5, 2020, are reported here.

At the time of the interim analysis, the observed mean decrease from baseline in the log viral load for the entire population was -3.81, for an elimination of more than 99.97% of viral RNA. For patients who received the 2800-mg dose of LY-CoV555, the difference from placebo in the decrease from baseline was -0.53 (95% confidence interval [CI], -0.98 to -0.08;  $P=0.02$ ), for a viral load that was lower by a factor of 3.4. Smaller differences from placebo in the change from baseline were observed among the patients who received the 700-mg dose (-0.20; 95% CI, -0.66 to 0.25;  $P=0.38$ ) or the 7000-mg dose (0.09; 95% CI, -0.37 to 0.55;  $P=0.70$ ). On days 2 to 6, the patients who received LY-CoV555 had a slightly lower severity of symptoms than those who received placebo. The percentage of patients who had a Covid-19-related hospitalization or visit to an emergency department was 1.6% in the LY-CoV555 group and 6.3% in the placebo group."

27 October 2020

J Youth Adolesc: [Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic](#)

"The restrictions put in place to contain the COVID-19 virus have led to widespread social isolation, impacting mental health worldwide. These restrictions may be particularly difficult for adolescents, who rely heavily on their peer connections for emotional support. However, there has been no longitudinal research examining the psychological impact of the COVID-19 pandemic among adolescents. This study addresses this gap by investigating the impact of the COVID-19 pandemic on adolescents' mental health, and moderators of change, as well as assessing the factors perceived as causing the most distress. Two hundred and forty eight adolescents ( $M_{age} = 14.4$ ; 51% girls; 81.8% Caucasian) were surveyed over two time points; in the 12 months leading up to the COVID-19 outbreak (T1), and again two months following the implementation of government restrictions and online

learning (T2). Online surveys assessed depressive symptoms, anxiety, and life satisfaction at T1 and T2, and participants' schooling, peer and family relationships, social connection, media exposure, COVID-19 related stress, and adherence to government stay-at-home directives at T2 only. In line with predictions, adolescents experienced significant increases in depressive symptoms and anxiety, and a significant decrease in life satisfaction from T1 to T2, which was particularly pronounced among girls. Moderation analyses revealed that COVID-19 related worries, online learning difficulties, and increased conflict with parents predicted increases in mental health problems from T1 to T2, whereas adherence to stay-at-home orders and feeling socially connected during the COVID-19 lockdown protected against poor mental health. This study provides initial longitudinal evidence for the decline of adolescent's mental health during the COVID-19 pandemic. The results suggest that adolescents are more concerned about the government restrictions designed to contain the spread of the virus, than the virus itself, and that those concerns are associated with increased anxiety and depressive symptoms, and decreased life satisfaction."

J Med Virol: [Fungemia in COVID -19 ICU Patients, a Single Medical Center Experience](#)

"A known proportion of patients who are admitted for the novel coronavirus disease 2019 (COVID-19) requires Intensive Care Unit (ICU) level of care. Prolonged ICU stay is a risk factor for the development of nosocomial candidemia. The current study aimed to investigate the incidence and risk factors associated with the development of nosocomial candidemia among patients admitted to the ICU for COVID-19. Patients who developed nosocomial candidemia were identified, and their clinical course was reported. A 1:3 case control matching was used to identify non-candidemia patients who served as controls. 89 patients were admitted to the ICU for COVID-19 during the study period. The incidence of nosocomial candidemia was 8.9% (n=8). Case-control matching identified 24 patients with similar disease severity at the time of ICU admission. Median time to first isolation of yeast was 26 days. Candidemia patients reported longer median ICU stay than controls. (40 vs. 10 days, p=0.004). In hospital death rates were comparable in both groups (38% vs. 54%, p=0.548). Prolonged mechanical ventilation support was associated with the development of nosocomial candidemia."

J Med Virol: [Discharge may not be the end of treatment: Pay attention to pulmonary fibrosis caused by severe COVID-19](#)

"Since December 2019, coronavirus disease (COVID-19) has rapidly swept the world. So far, more than 30 million people have been infected and nearly one million have died. Although the world is still in the stage of COVID-19 pandemic, the treatment of new cases and critically ill patients is the focus of the current work. However, COVID-19 patients lead to pulmonary fibrosis, such a serious threat to the prognosis of complications were also worthy of our attention. First of all, we proposed the possible mechanism of pulmonary fibrosis caused by SARS-CoV-2, based on the published data of COVID-19 ((i) Direct

evidence: pulmonary fibrosis was found in autopsy and pulmonary puncture pathology. (ii) Indirect evidence: increased levels of fibrosis-related cytokines[transforming growth factor [TGF]- $\beta$ , tumor necrosis factor [TNF]- $\alpha$ , interleukin [IL]-6, etc] in peripheral blood of severe patients.) What is more, we summarized the role of three fibrosis-related signaling pathways (TGF- $\beta$  signal pathway, WNT signal pathway and YAP/TAZ signal pathway) in pulmonary fibrosis. Finally, we suggested the therapeutic value of two drugs (pirfenidone and nintedanib) for idiopathic pulmonary fibrosis in COVID-19-induced pulmonary fibrosis."

PLoS One: [A comparison of health care worker-collected foam and polyester nasal swabs in convalescent COVID-19 patients](#)

"Both polyester and foam nasal swabs were collected from convalescent COVID-19 patients at a single visit and stored in viral transport media (VTM), saline or dry. Sensitivity of each swab material and media combination were estimated, three by three tables were constructed to measure polyester and foam concordance, and cycle threshold (Ct) values were compared. 126 visits had polyester and foam swabs stored in viral transport media (VTM), 51 had swabs stored in saline, and 63 had a foam swab in VTM and a polyester swab stored in a dry tube. Polyester and foam swabs had an estimated sensitivity of 87.3% and 94.5% respectively in VTM, 87.5% and 93.8% respectively in saline, and 75.0% and 90.6% respectively for dry polyester and foam VTM. Polyester and foam Ct values were correlated, but polyester showed decreased performance for cases with a viral load near the detection threshold and higher Ct values on average."

*26 October 2020*

Expert Rev Med Devices: [Preclinical validation of occupational and environmental safety of an isolation system for non-invasive ventilation in COVID-19 and other aerosol-transmitted infections](#)

"In preclinical experimental simulations, evaluate occupational and environmental safety of the newly developed isolation system for aerosol transmitted infections (ISATI).

Simulations were conducted to test ISATI's capability to isolate aerosolized molecular (caffeine), and biological (SARS-CoV-2 synthetic RNA) markers. Caffeine deposition was analyzed on nitrocellulose sensor discs by proton nuclear magnetic resonance spectroscopy. Synthetic SARS-CoV-2 detection was performed by reverse transcription polymerase chain reaction.

ISATI demonstrated efficacy in isolating molecular and biological markers within the enclosed environment in simulated conditions of CPAP, HFNO and mechanical ventilation therapy. Neither the molecular marker nor substantial amounts of synthetic SARS-CoV-2

RNA were detected in the surrounding environment, outside ISATI, indicating appropriate occupational safety for healthcare professionals.

Aerosolized markers were successfully contained within ISATI in all experimental simulations, offering occupational and environmental protection against the dissemination of aerosolized microparticles under CPAP or HFNO therapy conditions, which are indicated for patients with acute respiratory infections."

J Clin Invest: [Prolonged adaptive immune activation in COVID-19: implications for maintenance of long-term immunity?](#)

"Ongoing observational clinical research has prioritized understanding the human immune response to the SARS-CoV-2 during the COVID-19 pandemic. Several recent studies suggest that immune dysregulation with early and prolonged adaptive immune system activation can result in cellular exhaustion. In this issue of the JCI, Files et al. compared cellular immune phenotypes during the first two months of COVID-19 in hospitalized and less severe, non-hospitalized patients. The authors utilized flow cytometry to analyze circulating peripheral blood mononuclear cells. Both patient-cohorts maintained B and T cell phenotypes consistent with activation and cellular exhaustion throughout the first two months of infection. Additionally, follow-up samples from the non-hospitalized patient cohort showed that activation markers and cellular exhaustion increased over time. These findings illustrate the persistent nature of the adaptive immune system changes that have been noted in COVID-19 and suggest longer-term effects that may shape the maintenance of immunity to SARS-CoV-2."

J Infect Dis: [Neutralizing Antibody Responses in COVID-19 Convalescent Sera](#)

"Passive transfer of antibodies from COVID-19 convalescent patients is being used as an experimental treatment for eligible patients with SARS-CoV-2 infections. [FDA] guidelines for convalescent plasma initially recommended target antibody titers of 160. We evaluated SARS-CoV-2 neutralizing antibodies in sera from recovered COVID-19 patients using plaque reduction neutralization tests (PRNT) at moderate (PRNT50) and high (PRNT90) stringency thresholds. We found that neutralizing activity significantly increased with time post symptom onset (PSO), reaching a peak at 31–35 days PSO. At this point, the number of sera having neutralizing titers of at least 160 was approximately 93% (PRNT50) and approximately 54% (PRNT90). Sera with high SARS-CoV-2 antibody levels (>960 enzyme-linked immunosorbent assay titers) showed maximal activity, but not all high-titer sera contained neutralizing antibody at FDA recommended levels, particularly at high stringency. These results underscore the value of serum characterization for neutralization activity."

## Selected Literature: Preprints

*Preprints are found on preprint servers such as [arXiv](#), [bioRxiv](#), and [medRxiv](#); they are commonly used for biomedical research. Preprints may later be published in peer-reviewed journals.*

*Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."*

medRxiv: [A prospective study of risk factors associated with seroprevalence of SARS-CoV-2 antibodies in healthcare workers at a large UK teaching hospital](#) (posted 04 November 2020)

"Methods We conducted a prospective sero-epidemiological study of HCWs at a UK teaching hospital using a SARS-CoV-2 immunoassay. Risk factors for seropositivity were analysed using multivariate logistic regression.

Findings 410/5,698 (7.2%) staff tested positive for SARS-CoV-2 antibodies. Seroprevalence was higher in those working in designated COVID-19 areas compared with other areas (9.47% versus 6.16%) Healthcare assistants (aOR 2.06 [95%CI 1.14-3.71]; p=0.016) and domestic and portering staff (aOR 3.45 [95% CI 1.07-11.42]; p=0.039) had significantly higher seroprevalence than other staff groups after adjusting for age, sex, ethnicity and COVID-19 working location. Staff working in acute medicine and medical sub-specialities were also at higher risk (aOR 2.07 [95% CI 1.31-3.25]; p=0.002). Staff from Black, Asian and minority ethnic (BAME) backgrounds had an aOR of 1.65 (95% CI 1.32-2.07; p<0.0001) compared to white staff; this increased risk was independent of COVID-19 area working. The only symptoms significantly associated with seropositivity in a multivariable model were loss of sense of taste or smell, fever and myalgia; 31% of staff testing positive reported no prior symptoms.

Interpretation Risk of SARS-CoV-2 infection amongst HCWs is heterogeneous and influenced by COVID-19 working location, role, age and ethnicity. Increased risk amongst BAME staff cannot be accounted for solely by occupational factors."

medRxiv: [The duration, dynamics and determinants of SARS-CoV-2 antibody responses in individual healthcare workers](#) (posted 04 November 2020)

"Methods We present 6 months of data from a longitudinal seroprevalence study of 3217 UK healthcare workers (HCWs). Serial measurements of IgG antibodies to SARS-CoV-2 nucleocapsid were obtained. Bayesian mixed linear models were used to investigate antibody waning and associations with age, gender, ethnicity, previous symptoms and PCR results.

Results In this cohort of working age HCWs, antibody levels rose to a peak at 24 (95% credibility interval, CrI 19-31) days post-first positive PCR test, before beginning to fall. Considering 452 IgG seropositive HCWs over a median of 121 days (maximum 171 days) from their maximum positive IgG titre, the mean estimated antibody half-life was 85 (95%CrI, 81-90) days. The estimated mean time to loss of a positive antibody result was 137 (95%CrI 127-148) days. We observed variation between individuals; higher maximum observed IgG titres were associated with longer estimated antibody half-lives. Increasing age, Asian ethnicity and prior self-reported symptoms were independently associated with higher maximum antibody levels, and increasing age and a positive PCR test undertaken for symptoms with longer antibody half-lives.

Conclusion IgG antibody levels to SARS-CoV-2 nucleocapsid wane within months, and faster in younger adults and those without symptoms. Ongoing longitudinal studies are required to track the long-term duration of antibody levels and their association with immunity to SARS-CoV-2 reinfection."

medRxiv: [Are Mobile Phones part of the chain of transmission of SARS-CoV-2 in the hospital?](#)  
(posted 04 November 2020)

"SARS-CoV-2 cross-transmission has become an concern in hospitals. We investigate healthcare workers(HCWs) knowledge about SARS-CoV-2 cross-transmission and conceptions whether the virus can remain on HCWs mobile phones(MPs) and be part of the chain of transmission. A cross-sectional study was conducted at a COVID-19 Intensive Care Unit of a teaching-hospital. Fifty-one MPs were swabbed and a questionnaire about hand hygiene and MP use and disinfection was applied after an educational campaign. Although most of HCWs believed on the importance of cross-transmission and increased hand hygiene adhesion and MP disinfection during the pandemic, SARS-CoV-2 RNA was detected in two MPs (culture of the samples was negative). Implementation of official hospital policies to guide HCWs regarding disinfection and care of personal MP are needed."

bioRxiv: [Robust SARS-CoV-2-specific T-cell immunity is maintained at 6 months following primary infection](#) (posted 02 November 2020)

"The immune response to SARS-CoV-2 is critical in both controlling primary infection and preventing re-infection. However, there is concern that immune responses following natural infection may not be sustained and that this may predispose to recurrent infection. We analysed the magnitude and phenotype of the SARS-CoV-2 cellular immune response in 100 donors at six months following primary infection and related this to the profile of antibody level against spike, nucleoprotein and RBD over the previous six months. T-cell immune responses to SARS-CoV-2 were present by ELISPOT and/or ICS analysis in all donors and are characterised by predominant CD4+ T cell responses with strong IL-2 cytokine expression. Median T-cell responses were 50% higher in donors who had experienced an

initial symptomatic infection indicating that the severity of primary infection establishes a 'setpoint' for cellular immunity that lasts for at least 6 months. The T-cell responses to both spike and nucleoprotein/membrane proteins were strongly correlated with the peak antibody level against each protein. The rate of decline in antibody level varied between individuals and higher levels of nucleoprotein-specific T cells were associated with preservation of NP-specific antibody level although no such correlation was observed in relation to spike-specific responses. In conclusion, our data are reassuring that functional SARS-CoV-2-specific T-cell responses are retained at six months following infection although the magnitude of this response is related to the clinical features of primary infection."

medRxiv: [Longitudinal monitoring of SARS-CoV-2 RNA on high-touch surfaces in a community setting](#) (posted 01 November 2020)

"Environmental surveillance of surface contamination is an unexplored tool for understanding transmission of SARS-CoV-2 in community settings. We conducted longitudinal swab sampling of high-touch non-porous surfaces in a Massachusetts town during a COVID-19 outbreak from April to June 2020. Twenty-nine of 348 (8.3 %) surface samples were positive for SARS-CoV-2, including crosswalk buttons, trash can handles, and door handles of essential business entrances (grocery store, liquor store, bank, and gas station). The estimated risk of infection from touching a contaminated surface was low (less than 5 in 10,000), suggesting fomites play a minimal role in SARS-CoV-2 community transmission. The weekly percentage of positive samples (out of n=33 unique surfaces per week) best predicted variation in city-level COVID-19 cases using a 7-day lead time. Environmental surveillance of SARS-CoV-2 RNA on high-touch surfaces could be a useful tool to provide early warning of COVID-19 case trends."

SSRN: [The Effects of Large Group Meetings on the Spread of COVID-19: The Case of Trump Rallies](#) (posted 30 October 2020)

"We investigate the effects of large group meetings on the spread of COVID-19 by studying the impact of eighteen Trump campaign rallies. To capture the effects of subsequent contagion within the pertinent communities, our analysis encompasses up to ten post-rally weeks for each event. Our method is based on a collection of regression models, one for each event, that capture the relationships between post-event outcomes and pre-event characteristics, including demographics and the trajectory of COVID-19 cases, in similar counties. We explore a total of 24 procedures for identifying sets of matched counties. For the vast majority of these variants, our estimate of the average treatment effect across the eighteen events implies that they increased subsequent confirmed cases of COVID-19 by more than 250 per 100,000 residents. Extrapolating this figure to the entire sample, we conclude that these eighteen rallies ultimately resulted in more than 30,000 incremental confirmed cases of COVID-19. Applying county-specific post-event death rates, we conclude that the rallies likely led to more than 700 deaths (not necessarily among attendees)."

## ICYMI: Webinar

NETEC: [COVID-19 Webinar Series: Containing the Spread of COVID-19 on Inpatient Psychiatric Units](#) (from 21 October 2020)

"In this webinar, we will discuss effective leadership strategies that will allow for successful management of COVID-19 on inpatient psychiatric units, how to develop policies and procedures that will lead to efficient identification and isolation of cases and how to identify necessary modifications to unit programming that must be made to prevent the spread of infection."

Slides:

<https://repository.netecweb.org/files/original/75d455f777383d3b0a352353b88464f0.pdf>

YouTube link: <https://youtu.be/lSEFMwMja4o> [56:39]

## News in Brief

Another record breaker: on Wednesday, 04 November, the US had more than 100,000 COVID-19 cases in a single day ([WaPo](#)).

Cases are up for everyone, but especially for children – there were 61,000 new cases in children during the last week of October ([AAP](#)).

Experts are calling for an all-out response as cases of coronavirus continue surge around the country; Dr. Fauci warns that we are in for 'a whole lot of hurt' ([WaPo](#); [WaPo](#)).

### *Exposure and Testing*

Rapid tests for coronavirus may miss asymptomatic cases, complicating their real-world use in tracking the spread in communities ([NYT](#); see also this [statement from FDA](#)).

NH Bremerton is using an ultraviolet light-emitting robot to help with infection control ([DOD](#)).

### *Treatments, Therapies, and Effects*

Regeneron has paused recruitment in COVID-19 patients with high oxygen requirements for its antibody cocktail trial at the request of the independent data monitoring committee ([Regeneron](#)).

There is growing concern about the off-label use of dexamethasone for COVID-19 ([STAT](#)).

The coronavirus might make tinnitus worse ([NBC](#)).

"Clots, strokes and rashes. Is COVID-19 a disease of the blood vessels?" ([NPR](#))

### *Thanks, Coronavirus: Animal Edition*

Denmark is culling up to 17 million of its mink population after a coronavirus mutation was found that spread to humans ([Reuters](#)).

Wild, captive, domesticated, and companion animals are all at risk; scientists are surveying to find which species might be susceptible to SARS-CoV-2, including marine animals ([KHN](#)).

For more on animals and SARS-CoV-2, see this article on zoonotic viral transmission in experimental and natural conditions ([Transbound Emerg Dis](#)).

### *Make a Difference*

"Don't wait for stressed clinicians to ask for help, experts say" ([Medpage](#)).

Students at the University of Pittsburgh School of Medicine have written a new Hippocratic oath that asks doctors to fight racial injustice and misinformation, and acknowledges the impact of the pandemic ([NPR](#)).

Howard Hughes Medical Institute has made a six-figure donation to the Henrietta Lacks Foundation in reparation for the continued use of the HeLa cell line ([Nature](#)).

### *Long Reads*

"How the coronavirus hacks the immune system" ([New Yorker](#); also audio version [45:12]).

"In hunt for virus source, WHO let China take charge" ([NYT](#)).

"Inside the bizarre publishing ring that linked 5G to coronavirus" ([Vice](#))

### *Publishing During the Pandemic*

The journal *Health Security* has put out a call for papers on systemic racism and health security during COVID-19. Topics include health disparities, risk communication, medical research, and harm reduction; papers must be submitted by 31 January 2021 ([JHCHS](#)).

If you do try to publish something, just remember to publish your paper only once... not 3 times. That's plagiarism ([Retraction Watch](#)).

In case you aren't familiar with plagiarism in academic writing, never fear – NMCP Library Services has you covered! We will be presenting a session of the Ethics Roundtable in December about this issue. Look for more information closer to then.

### *And Now for Something Completely Different*

Still have Halloween candy stash left over from last week? Learn about the history of candy while you finish it off ([ThoughtCo](#); see also [Candy History](#)).

You can also make your own gummy bears, if that's your thing ([Spruce Eats](#)).

## References

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VA DOH: Virginia Department of Health. COVID-19 in Virginia. Link: <http://www.vdh.virginia.gov/coronavirus/>

### *Updates From the CDC*

CDC: Centers for Disease Control and Prevention. CDC's role in helping cruise ship travelers during the COVID-19 pandemic (30 October 2020). Link:

<https://www.cdc.gov/coronavirus/2019-ncov/travelers/cruise-ship/what-cdc-is-doing.html>

CDC: Centers for Disease Control and Prevention. Common Investigation Protocol for Investigating Suspected SARS-CoV-2 Reinfection (updated 27 October 2020). Link:

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### *Special Reports*

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